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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of )  
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Petition of the ) RM-9096  
Intelligent Transportation Society )  
of America for Amendment of the )  
Commission's Rules to Add )  
Intelligent Transportation Services )  
(ITS) as a New Mobile Service )  
With Co-Primary Status in the )  
5.850-5.925 GHz Band )

To: The Commission

**COMMENTS OF RESOUND CORPORATION**

ReSound Corporation ("ReSound"), by its attorneys and pursuant to the Public Notice, DA 97-1106, released May 28, 1997, hereby submits its comments on the above-captioned Petition (the "Petition") filed by the Intelligent Transportation Society of America ("ITS America"). The following is respectfully shown:

**I. Preliminary Statement**

1. ReSound, which is one of the largest hearing health care companies in the world, is a worldwide leader in the development and manufacture of scientifically advanced solutions for the hearing impaired, dispensing audiologist, and pediatric communities. Technological innovations and strategic acquisitions have spurred the company's growth in recent years, and today ReSound is positioned to provide hearing health care products to a wide range of hearing-impaired users, from children to profoundly deaf senior citizens.

2. ReSound's technological developments have led it to focus on the 5 GHz frequency band, specifically the segment at 5.850-5.875 GHz. ReSound has

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termed this spectrum the "Quiet Band" because the Commission's rules provide special protection against harmful interference to devices operating within this frequency range. In its Petition, ITS America seeks an allocation of 75 MHz -- at 5.850 - 5.925 GHz, which encompasses the Quiet Band -- for an assortment of potential services loosely grouped under the name "Dedicated Short Range Communications" ("DSRC") systems.

3. ReSound believes that ITS America has not demonstrated how it intends to protect other users of the spectrum it seeks, particularly, low power operations in the 5.850-5.875 GHz band. Consequently, ReSound opposes ITS America's request to the extent it seeks an allocation of the 5.850-5.875 GHz band for DSRC systems, and to the extent that such systems operating on adjacent spectrum would create harmful interference to the Quiet Band.

## **II. ISM Devices Merit Special Consideration in Any Spectrum Allocation Decision Affecting the 5 GHz Band**

### **A. Unique Characteristics of the 5.850-5.875 GHz Band**

4. Many existing and proposed hearing health care products use radio frequencies in the Industrial, Scientific and Medical ("ISM") bands, including the 5.725 - 5.875 GHz band, for auditory enhancement.<sup>1/</sup> The Commission has recognized the public interest benefits resulting from its allocation of spectrum for use by ISM equipment. In setting aside spectrum in eleven frequency bands for ISM equipment, including the 5.725-5.875 GHz band, the Commission decided not

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<sup>1/</sup> The Commission defines ISM equipment as "equipment or appliances designed to generate and use radio frequency (RF) energy to perform some work other than telecommunications." 47 C.F.R. § 18.107(c).

to impose emission restrictions and required radio services that share the ISM bands with ISM equipment to operate on a secondary basis. See 47 C.F.R. § 15.247, Note.

5. The Commission's foresight in allocating spectrum for ISM equipment has greatly benefited millions of hearing-disabled Americans. Some 6 million Americans suffer from hearing disabilities that require hearing aids, and another 20 million individuals are believed to have experienced some degree of hearing loss, but choose not to obtain medical assistance. Thus, the Commission's rules play a critical role in serving the needs of the hearing impaired by according primary status to ISM devices, including hearing aids, thereby making interference-free operation possible and improving the lives of a large and growing segment of the population.

6. The Commission's rules provide particularly stringent interference protection to ISM devices operating in the 5.850-5.875 GHz "Quiet Band". Specifically, unlicensed communications systems operating under section 15.249 of the Commission's rules -- including devices for the hearing-impaired -- presently may operate within the Quiet Band and thereby avoid interference from transmitters that operate under rule section 15.247, which permits higher power operations outside the Quiet Band. See 47 C.F.R. § 15.249; OET Bulletin 63, pp. 24-25, December, 1994.<sup>2/</sup>

7. The special protection from interference accorded to the Quiet Band has made it the focus of new technological developments for the benefit of

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<sup>2/</sup> The 5.850-5.875 GHz band is subject to much lower permissive power levels than the portion of the ISM band at 5.725-5.850 GHz, where ISM devices must co-exist with unlicensed spread spectrum devices operating with up to 1 watt of power. Compare 47 C.F.R. § 15.249 with 47 C.F.R. § 15.247.

persons with hearing disabilities. Until relatively recently, hearing aid devices were large, cumbersome, and unsightly. Many potential users refrained from acquiring hearing aids because of a perceived stigma associated with wearing them. Recent developments in wireless hearing aid technology by ReSound utilize the 5.850-5.875 GHz band to overcome these impediments. These advancements allow electronic enhancement of audio signals in a compact processor system that can be worn by the user at a location remote from the earpiece (e.g., on the user's belt). The processor system communicates with the earpiece via radio waves. By concentrating the signal enhancement hardware in the remote processing unit, the separate earpiece can be made sufficiently small as to be invisible to the casual observer, and a quarter-wavelength one-half-inch antenna can be disguised as an ear hair. Miniaturization of components within the device allow it to be worn unobtrusively and without stigma. Furthermore, the quality of the hearing device and advanced features necessary for highly impaired users now are possible when operated in accordance with existing rules for the 5.850-5.875 GHz band.

**B. Federal Telecommunications Policy Must Safeguard the Interests of Hearing-Impaired Individuals**

8. The Commission historically has been sensitive to the issue of interference to hearing aid devices. For example, the Commission has taken steps to reduce possible interference from low power AM radio systems to hearing aids. See Revision of Part 15 of the Commission's Rules Regarding the Operation of Radio Frequency Devices without an Official License, 5 FCC Rcd 7729 (1990). The Commission has reiterated its intent to consider the interests of disabled Americans when implementing federal telecommunications policy in accordance with the

Americans with Disabilities Act. See "Making Full Access a Reality: A Practical Perspective on Translating Vision Into Action," speech June 21, 1996 by Chief, Wireless Telecommunications Bureau.

9. The Commission also must fulfill statutory obligations to the hearing impaired. The Americans with Disabilities Act requires all agencies of the federal government to address barriers to communications faced by all people with disabilities.<sup>3/</sup> The Commission has embraced these obligations; indeed, the importance of these efforts is highlighted by the fact that the Chairman of the Commission created the Disabilities Issues Task Force, and appointed himself to head it.

### **III. The ITS America Petition Offers No Protection for Low Power Operations in the 5.850-5.875 GHz Band**

10. ReSound's principal concern with the ITS America Petition is that it fails to demonstrate how DSRC systems will co-exist with other users of the 5.850-5.875 GHz band. Consequently, it is impossible, based on the Petition, to determine whether DSRC systems will cause unacceptable interference to low power Section 15.249 devices in the 5.850-5.875 GHz band. Without more, ReSound must conclude that sharing of the Quiet Band with DSRC systems will threaten publicly beneficial health care advancements that have been developed specifically to operate in the unique low power environment offered by the Commission's rules.

11. Although ITS America states that ITS uses are "compatible" with existing uses of the 5.850-5.925 GHz band, Petition at p. 47, it offers no technical analysis of the impact that DSRC systems may have on existing users and no

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<sup>3/</sup> 42 U.S.C. § 12101.

discussion of the technical parameters of the various services that ITS America promotes. Rather, most of the Petition is devoted to describing what ITS America believes are the benefits of various ITS uses. See Petition at pp. 1-36. While ReSound appreciates ITS America's willingness to work with other spectrum users, ITS America simply has not provided sufficient information at this time determine the feasibility of joint ISM/DSRC uses.

12. Moreover, because no specific design for DSRC systems is contemplated, any current claims regarding non-interference to other uses cannot be tested. ISM devices such as those developed by ReSound have been designed for ubiquitous use, including use by persons traveling in automobiles, buses, and other highway vehicles. The DSRC systems described by ITS America are certain to create interference to ISM devices operating in a mobile environment.<sup>4/</sup>

13. Finally, ReSound notes that the Commission recently affirmed its intent to retain the benefits offered by the Quiet Band. In allocating spectrum for unlicensed National Information Infrastructure devices, the Commission barred such devices from operating in the 5.825 - 5.875 GHz band in order to "avoid potential interference with low power Part 15 hearing aid devices ... in the 5.850-5.875 GHz band." Amendment of the Commission's Rules to Provide for the Operation of Unlicensed NII Devices in the 5 GHz Frequency Range, ET Docket No. 96-102, Report and Order, FCC 97-5, released January 9, 1997. Nothing in the ITS America

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<sup>4/</sup> In any event, based on the DSRC systems described in the Petition, it appears that the number of potential users would be relatively small, with a correspondingly low level of data transmission. Accordingly, it should be possible for DSRC systems to be accommodated in spectrum outside the 5.850-5.875 GHz band.


Petition should cause the Commission to take measures that would undermine this recent decision.

WHEREFORE, the foregoing premises duly considered, ReSound respectfully requests that the Commission dispose of the ITS America Petition consistent with the foregoing comments.

Respectfully submitted,

**RESOUND CORPORATION**

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